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(not shown)

B.R.A. additions (3.0 alternative,
low income population, and average
daily population projections).

Plaza
E 17
P

Park Plaza Projected Characteristics
of Residents, Office Workers, Retail Em-
ployees, Retail Employees, Hotel Occupants,
and Hotel Employees

ECONOMICS RESEARCH ASSOCIATES

March 21, 1975



To: Mr. Vincent Moore, Saratoga Associates

From: Tom Martin, Paul Madden

Re: Park Plaza Projected Characteristics of Residents, Office Workers, Retail Employees, Retail Employees, Hotel Occupants, and Hotel Employees.

Date: March 21, 1975

ERA determined the 1985 characteristics for each of the proposed Park Plaza projects--2M, 3M, 4M, 5M, and 6M. The following information is provided herein:

A. Residents

- A.1. Household Size
- A.2. Total Population
- A.3. Age/Sex Composition
- A.4. Median Income
- A.5. Occupational Characteristics
- A.6. Marital Status

B. Office Workers

- B.1. Total Employees
- B.2. Income Characteristics
- B.3. Occupational Characteristics
- B.4. Age/Sex Composition

C. Retail Employees and Shopper Visitation Levels

- C.1. Occupational Characteristics
- C.2. Income Characteristics
- C.3. Total Employees
- C.4. Total Annual Shopper Visits
- C.5. Quarterly Average Daily Shopper Visits
- C.6. Quarterly Average Daily Shopper Distribution

D. Hotel Occupants

- D.1. Average Annual Total Occupants
- D.2. Weekday Versus Weekend Occupancy
- D.3. Average Quarterly Occupancy
- D.4. Average Daily Occupancy

E. Hotel Employees

- E.1. Total Number of Employees
- E.2. Occupational Characteristics
- E.3. Income Characteristics
- E.4. Age and Sex Characteristics

Where appropriate, high, medium and low projections were utilized. The shopper visits and hotel occupancy were projected on a quarterly basis. The methodologies are described below. The factors used in calculations have been included in the charts to further illustrate the basis of the derived figures.

The studies performed by the Boston Redevelopment Authority on high-rise apartment dwellers and downtown office activity provided valuable inputs to this work and served to broaden the data base. ERA wishes to thank the BRA and Peter Menconeri for their assistance in this effort.

A.1. Household Size

Recent studies show that the present number of persons per household in Boston's downtown high-rise apartments is 1.6 persons per unit.¹ In comparing this household size to that of the proposed Park Plaza apartments, the size of the units were compared. The average unit at Charles River Park is 870 square feet, at the Prudential Tower it is 925 square feet; their weighted average is 888 square feet per unit. The Park Plaza units, as planned, are slightly larger, but their size will not serve to attract substantially larger household units. Trends indicate two other factors which could affect the size of households. One is the growing propensity for unrelated individuals to form a household in order to increase their cumulative renting power. The second trend is that of family size diminishing.² These trends have been considered in projecting the size of households for Park Plaza in 1985. The range selected is from 1.4 to 1.8 persons per household. (Low income!)

A.2. Total Population

In Table 1, present household size in high-rise apartments (1.6 persons per unit) was picked as the median for the Park Plaza 1985 projected residency, with 1.4 and 1.8 persons per unit representing the range of possible densities to be determined by the future conflicting trends of smaller family size and the grouping of unrelated individuals. This range was then applied to the total numbers of units in each of the five schemes. The full range is from 448 occupants in the 2M program to 2,961 occupants in the 6M program.

¹ Luxury Housing Opportunities, by Gladstone Associates, July, 1971.

Boston's New High-Rise Apartments: A Study of the Residents and Their Preferences, Boston Redevelopment Authority, January, 1974.

² U.S. Bureau of the Census 4th Count, 1970.

Table 1 Employees and Residents

Development Program	2M	3M	4M	5M	6M
<u>RETAIL</u>					
Gross sq.ft.	141,500	304,500	315,000	354,200	352,000
Employees	1	1	1	1	1
	593	1280	1287	1488	1477
			1323	1497	1483
<u>OFFICES</u>					
Gross sq.ft.	886,000	1,035,500	1,291,500	1,926,600	1,823,500
Gross Leasable Area (87%)	770,800	900,900	1,123,600	1,676,100	1,586,400
Employees					
(÷ 180) High	4,300	5,000	6,200	9,300	8,800
(÷ 200) Med.	3,900	4,500	5,600	8,400	7,900
(÷ 220) Low	3,500	4,100	5,100	7,600	7,200
<u>APARTMENTS</u>					
Gross sq.ft.	407,500	1,175,000	1,175,000	1,285,000	1,945,000
Number of Units	320	995	995	1,085	1,645
Occupants					
(x 1.8) High	576	1791	1791	1953	2961
(x 1.6) Med.	512	1592	1592	1736	2632
(x 1.4) Low	448	1393	1393	1519	2203
<u>HOTEL</u>					
Gross sq. ft.	-	618,500	618,500	581,000	581,000
Employees	-	740	740	695	695
(837 sq. ft./emp.)	-				

A.3. Age/Sex Composition

The age composition of residents presently occupying Boston high-rise apartments and the age composition of residents of Beacon Hill and Back Bay were modified to accommodate shifts in the age make-up of the general population for 1985. The predominant trend is the shift of the large "war baby" portion of the population into the 30 to 60-year old category. Table 2 shows that the probable age composition for the Park Plaza residents will be: 6 percent under 18 years old, 20 percent 18 to 30 years old, 50 percent 30 to 60 years old, and 24 percent over 60 years old. The present characteristic of very few children in the high-rise apartments and in Back Bay and Beacon Hill is expected to continue. Due to the relatively high cost of high-rise apartment living, the older age groups predominate. "Empty nesters" and older, security conscious persons will make up a strong share of the resident population. The sex composition of the Beacon Hill and Prudential Complex neighborhoods³ are quite similar to that of the population as a whole. For 1985 projections, adjustments were made to reflect a trend of more women than men in high-rise residences. Table 2 shows a projected composition of 52 percent female and 48 percent male. The rising wage scale and increasing numbers of professional women, along with their preference for apartments with adequate security are the prime determinants of adjustments made to project future sex composition of residents.

*TO BE
Submitted
Beacon Hill
Back Bay*

A.4. Median Income

A 1971 survey of the Prudential Towers, Charles River Park, and the Harbor Towers shows that the median income of residents was \$18,800 in 1970.⁴ Income projections have been made for the Boston neighborhoods up to 1985 by the Boston Redevelopment Authority.⁵ As the 1970 income characteristics of the surveyed high-rise residences and those of Beacon Hill and Back Bay are very simi-

³ Ibid.

⁴ Gladstone and Associates, op. cit., p. 1.

⁵ The People of Boston and Their Neighborhoods, BRA, June, 1974.

1985 CHARACTERISTICS

	Retail Employees	Office Workers	Residents	Hotel Employees
Sex				
Male	54%	50%	48%	52%
Female	46%	50%	52%	48%
Income			Median Income \$26,000	
Less than 5,500	20%	5%		30%
5,500 to 9,999	70%	42%		69%
10,000 to 21,000	8%	40%		.8%
Over 21,000	2%	13%		.2%
Occupation				
Professional and Technical	6%	26%	42%	4%
Managerial	10%	15%	34%	2%
Clerical	30%	48%	13%	7%
Sales	30%	5%	6%	.7%
Operatives	7%	1%	3%	.3%
Other	17%	5%	2%	86%
	Age	Marital Status	Age	
	Under 25	Never Married	Under 25	25%
	25-40	Married	25-40	45%
	Over 40	Separated	Over 40	30%
		Widowed		
		Divorced		
	Age			
	Under 18			
	18-30			
	30-60			
	Over 60			

Table 3 Employment Characteristics

		2M		3M		4M		5M		6M	
		Scheme 1		Scheme 1		Scheme 1		Scheme 1		Scheme 1	
		Scheme 2		Scheme 2		Scheme 2		Scheme 2		Scheme 2	
DETAIL											
Total Employees		593	1280	1287	1323	1331	1488	1497	1477	1483	
Sex: Male	54%	320	691	694	714	719	804	808	793	801	
Sex: Female	46%	273	588	592	609	612	684	689	679	682	
Income											
less than 5500	45%	267	576	579	595	599	670	674	665	667	
5500 to 9999	45%	267	576	579	595	599	670	674	665	667	
10,000 to 21,000	8%	47	102	103	106	106	119	120	118	119	
over 21,000	2%	12	26	26	26	27	30	30	30	30	
Occupation											
Professional + Technical	6%	36	77	77	79	80	89	90	89	89	
Managerial	10%	59	128	129	132	133	149	150	148	148	
Clerical	30%	178	384	386	397	399	446	449	443	445	
Sales	30%	178	384	386	397	399	446	449	443	445	
Other	24%	142	307	309	317	319	357	359	354	356	
OFFICE											
Total Employees		3500	4300	5000	5100	6200	7600	9300	7200	8800	
Sex: Male	50%	1750	2150	2500	2550	3100	3800	4650	3600	4400	
Sex: Female	50%	1750	2150	2500	2550	3100	3800	4650	3600	4400	
Income											
less than 5500	5%	175	215	250	255	310	380	455	360	440	
5500 to 9999	42%	1470	1806	2100	2142	2604	3192	3906	3024	3696	
10,000 to 21,000	40%	1400	1720	2000	2040	2480	3040	3720	2380	3520	
over 21,000	13%	455	559	650	663	806	988	1209	936	1144	
Occupation											
Professional + Technical	26%	910	1118	1300	1326	1612	1976	2418	1872	2288	
Managerial	15%	525	645	750	765	930	1140	1395	1080	1320	
Clerical	42%	1630	2064	2400	2448	2976	3648	4464	3456	4224	
Sales	5%	175	215	250	255	310	380	455	360	440	
Other	6%	210	258	300	306	372	456	558	432	528	
HOTLINE											
Total Employees		740	740	740	740	740	695	695	695	695	
Sex: Male	52%	385	385	385	385	385	361	361	361	361	
Sex: Female	48%	355	355	355	355	355	334	334	334	334	
Income											
less than 5500	82%	607	607	607	607	607	570	570	570	570	
5500 to 9999	15%	111	111	111	111	111	104	104	104	104	
10,000 to 21,000	1.5%	11	11	11	11	11	10	10	10	10	
over 21,000	.5%	4	4	4	4	4	3	3	3	3	
Occupation											
Professional + Technical	4%	30	30	30	30	30	28	28	28	28	
Managerial	2%	15	15	15	15	15	14	14	14	14	
Clerical	7%	52	52	52	52	52	49	49	49	49	
Sales	.7%	5	5	5	5	5	5	5	5	5	
Operatives	.3%	2	2	2	2	2	2	2	2	2	
Other	86%	636	636	636	636	636	598	598	598	598	

lar the same future income factor used on those neighborhoods was applied to the present high-rise apartment dwellers' median income. That factor was 38 percent from 1970 to 1985 which when applied to the \$18,800 median income gives a 1985 median high-rise apartment dwell income of \$26,000 as shown in Table 2.

A.5. Occupational Characteristics

The occupational characteristics of the 1985 Park Plaza residents are reflected by their projected income level which is relatively high. As expected, a high level of income would accompany a managerial-technical type of job. Present occupational characteristics in the high-rise apartments and in the upper income neighborhoods are very similar to those characteristics projected for 1985 in Table 2. Professional and technical occupations will comprise 42 percent of the residents; 34 percent will be managerial; of the remaining 24 percent-13 percent will be clerical, 6 percent sales, 3 percent operatives, and 2 percent other occupations.

A.6. Marital Status

The present marital status characteristics of residents are subject to substantial change by 1985. The growing trend of the young to not marry, along with the rising divorce rates of the older age groups, will have strong effects on the marital status characteristics of Boston's population. Counter to the general trend, however, is the propensity for young-married couples to live in the high-rise apartments. The U.S. 4th Count Census of 1970 shows that the income and occupational characteristics between Beacon Hill residents and the residents of a tract which nearly isolates the Prudential Complex are strikingly similar. But there are 33 percent more married persons living in the Prudential high-rise apartments than there are on Beacon Hill.

Table 2 shows that for 1985 Park Plaza might expect to have 39 percent of its occupants having never married; 40 percent married; 2 percent separated; 12 percent widowed; and 6 percent divorced.

B. Office Workers

B.1. Total Employees

The gross leasable area was deduced from the gross floor area for the purposes of office space computations. ERA used a factor of 87% to accomplish this. In order to determine the number of office workers in each of the development schemes, a range was determined for the number of square feet per office worker. This range accomodates a national trend for more square feet per worker in newly constructed metropolitan offices and also takes into account the local space per worker ratios in newly constructed downtown Boston office buildings.⁵ Due to the mix of types of businesses which occupy large office structures and the large variances which exist in the space per worker ratios in different business,⁶ a suitable range of square feet per worker is provided to encompass the possibilities for office employment in the Park Plaza offices in 1985. Table 1 illustrates the range of possible levels of employment based on a space per worker ratio of from 180 square feet per worker to 220 square feet per worker.

B.2. Income Characteristics

The prime determinant of the income characteristics of office workers in the Park Plaza project will be the tenant mix. Surveys accomplished by the Boston Redevelopment Authority indicate that in the larger office buildings of Boston definite employment and income characteristics establish themselves.

⁵ • The Office Industry: Patterns of Growth and Location, by R.B. Armstrong and B. Pushkarer, M.I.T. Press, 1972.

• Boston's Office Industry; Office Space Demand and Supply, Past and Projected, by Peter Manconeri, Boston Redevelopment Authority, May 1974.

• 1973 Summary of New Competitive Office Buildings in Greater Boston, by The Codman Company, Boston, 1973.

⁶ • Estimating land and Floor Area Implicit in Employment Projections, by Ide Associates, Philadelphia, July, 1970.

In projecting the income characteristics from those presently found to 1985 levels--a rise in income factor was used based on the same factor (38 percent from 1970 to 1985) which was used to project future residents' income at Park Plaza. Table 2 shows the 1985 income characteristics of office workers in 1970 constant dollars with 5 percent earning less than \$5,500; 42 percent earning between \$5,500 and \$9,999; 40 percent earning between \$10,000 and \$21,000; and 13 percent earning over \$21,000.

B.3. Occupational Characteristics

The occupational characteristics were also felt to be linked to the type of business engaged in by the office tenants. As with income, nationwide metropolitan trends were compared to surveyed newly constructed office buildings in Boston. The resulting tenant mix and occupational characteristics were projected directly to 1985 with only slight modification to allow for minor trends in office operating procedures due to technological innovations.

B.4. Age-Sex Composition

The age composition of office workers is, again, a function largely of company policy. General trends in the age composition of the entire population will have the largest effect in the 25 to 40 age bracket which will in 1985 encompass a larger share of the total work force than it does presently. Table 2 shows that 26 percent of the office workers will be under 25 years old; 45 percent will be in the 25 to 40 year old bracket; and 29 percent will be over 40 years of age. The present slight predominance of the number of male office workers to the number of female workers should change by 1985. With female office workers gaining a larger share of the management and technical-professional jobs it was determined that by 1985 an equal distribution of 50%-50% male-female distribution will be in evidence.

C. Retail Employees and Shopper Visitation Levels

C.1. Occupational Characteristics

The occupational characteristics of retail employees are linked to the type of retail operation being dealt with. In the schemes presented for Park Plaza, ERA has devised two retail composites which are explained in detail below. Basically, one assumes a major department store tenant while the other contains more specialty shopping in place of the major department store. The same occupational characteristics were determined for each of these situations based on the assumption that the major department store tenant maintains its operational offices on the premises. If these offices were not maintained at Park Plaza, then the share of managerial and clerical occupations would be expected to diminish. As projected in Table 2, 6 percent of the workers would be in professional and technical occupations; 10 percent managerial; 30 percent clerical; 30 percent sales; 7 percent operatives; and 17 percent in other occupations.⁷

C.2. Income Characteristics

The income characteristics were first projected on the basis of occupation and then weighted to reflect the occupational characteristics of all retail workers. The resulting figures were compared to selected retail worker incomes in the Boston area to check accuracy. Table 2 shows that 20 percent of the retail workers will earn less than \$5,500. It should be noted that this would include part-time employees. Seventy percent of the workers would earn between \$5,500 and \$9,999; 8 percent would earn between \$10,000 and \$21,000; and 2 percent would earn over \$21,000.

C.3. Total Employees

In order to determine the number of total employees in the different

⁷ The Retail Trade, Selected Department Store Occupations, U.S. Department of Labor, Manpower Administration, 1972.

retail composites a set of square feet per employee factors were utilized.⁸ The factors used were as follows: GAF-230 square feet per employee; specialty-300 square feet per employee; convenience-400 square feet per employee; eating/drinking-126 square feet per employee.

These figures are national figures which were compared to local retail operations in the Prudential Plaza which contains a retail mix similar to that of the 3M scheme projected for Park Plaza. The factors were applied to the square footage of each retail use in the individual schemes which were each presented in two configurations, with and without a major department store.⁹

Table 3 shows the total retail employment projections for each of the retail compositions.

C.4. Total Annual Shopper Visits

In order to determine total annual shopper visits, three steps were performed. First, total retail sales were determined for each of the different retail composites. Second, a range of average sale figures were derived for each of the retail composites. Third, the average sale figure for each scheme was divided into that schemes total annual sales figure yielding the projected total annual shopper visits.

The first step in developing total retail sales was to determine the make-up of the retail activities. Two retail composites were developed-- one with a department store and one without.

Retail Composition

<u>Type</u>	without department store	with department store
	<u>Retail 1</u>	<u>Retail 2</u>
→ GAF	30%	55%
→ Specialty	40%	20%
→ Convenience	15%	15%
→ Eating/Drinking	15%	10%

⁸ Estimating Land and Floor Area Implicit in Employment Projections,
Ide Associates, Philadelphia, July, 1970.

⁹ The 2M scheme is not shown with a major department store due to size restrictions.

The above percentages were applied to the square foot areas of the five development plans. For the 2M plan, only the Retail 1 composite was applied because the limited retail area disallowed a major department store tenant.

A range of sales per square foot was calculated for each of the retail user categories based on comparables in Boston and in other Northeast metropolitan retail outlets.

Retail Sales Per Square Foot

	<u>Low</u>	<u>Medium</u>	<u>High</u>
GAF	90	110	130
Specialty	95	115	135
Convenience	90	105	120
Eat/Drink	115	130	145

In order to generate annual gross sales a matrix was devised to be sensitive to the number of employees and residents in the total project who were considered to be a captive market. The convenience and eating/drinking establishments are the most sensitive to employee-resident population. The department store, specialty, and general merchandise retailers are less sensitive to captive market inputs due to their relatively large sales volume and their ability to draw on the regional market.

Gross Sales Range

	<u>*2M</u>	<u>3M</u>	<u>4M</u>	<u>5M</u>	<u>6M</u>
	<u>L M H</u>	<u>L M H</u>	<u>L M H</u>	<u>L M H</u>	<u>L M H</u>
GAF	x	x	x	x	x
Specialty	x	x	x	x	x
Convenience	x	x	x	x	x
Eat/Drink	x	x	x	x	x

Once the total annual sales volume was determined, the number of total annual visitors was derived by applying an average sale per visitor factor. This average sale per visitor factor ranged from \$4 in the 2M scheme

* No department store in 2M retail mix.

Using the above matrix to determine sales per square foot, these values were then applied to the individual retail users. The total annual sales levels are presented in Table 4.

Table 4

1995 Sales Levels and Visitor Projections

	2M	3M		4M		5M		6M	
	Retail 1	Retail 1	Retail 2	Retail 1	Retail 2	Retail 1	Retail 2	Retail 1	Retail 2
Average Annual Sales Level \$	13,548,000	30,532,000	29,624,000	35,908,750	35,364,250	42,060,000	41,077,900	46,656,100	43,112,000
Annual Sales/Visitor \$	4.00	4.25	4.75	4.50	5.00	4.75	5.25	5.00	5.50
Annual Visitors	3,387,000	7,104,000	6,303,000	7,997,500	7,072,800	8,854,700	7,824,400	9,331,200	8,334,000
Quarterly Total Visitors									
Winter 16A	541,900	1,149,400	1,008,500	1,279,600	1,131,600	1,416,800	1,251,900	1,493,000	1,341,400
Spring 24A	812,900	1,724,200	1,512,700	1,919,400	1,697,500	2,123,100	1,877,900	2,239,500	2,012,200
Summer 25A	846,800	1,796,000	1,575,800	1,992,400	1,768,200	2,213,700	1,956,100	2,322,800	2,096,000
Fall 35A	1,185,400	2,514,400	2,206,100	2,799,100	2,475,500	3,009,100	2,739,500	3,265,900	2,924,400
Average Daily Visitors (#338)	10,000	21,300	19,600	23,700	20,900	26,200	23,100	27,600	24,300
Quarterly Average Daily Visitors									
Winter (#31.5)	6,500	13,800	12,100	15,300	13,500	17,000	15,000	17,900	16,100
Spring (#64.5)	9,600	20,400	17,900	22,700	20,100	25,100	22,200	26,500	23,500
Summer (#35.3)	9,900	21,100	18,500	23,400	20,700	26,000	22,900	27,300	24,600
Fall (#95.2)	13,900	29,500	25,900	32,800	29,000	36,300	32,100	38,100	34,400
Average Daily Shopper Visits Distribution (Fall)									
Before 12 12A	1,670	3,540	3,110	3,280	3,480	4,360	3,850	4,600	4,130
12-2 4A	5,840	12,390	10,880	13,780	12,180	15,250	13,500	16,090	14,450
2-6 20A	4,170	8,850	7,770	9,840	8,700	10,810	9,630	11,490	10,320
6-9 16A	2,220	4,750	4,140	5,250	4,640	5,810	5,140	6,130	5,520

Retail 1--Without department store
 Retail 2--With department store

to \$5.50 in the 6M scheme with a department store. The criteria for this range is national sales figures which have been adjusted to reflect projected conditions for Park Plaza. Table 4 illustrates the range of sales per visitor and the resulting figures of total annual visitors.

C.5. Quarterly Average Daily Shopper Visits

The seasonality of shopper sales activity was determined based on records of monthly retail sales in the Boston SMSA.¹⁰ The monthly sales levels were grouped into four 3-month seasons in order to show quarterly fluctuations in retail activity. The seasonality, as shown in Table 4, breaks down to: 16 percent of shopper visits in winter, 24 percent in spring, 25 percent in summer, and 35 percent in the fall. In order to determine the quarterly average shopper visits by the day, factors were used which were based on a 338-day shopper year. The number of days in each of the calendar quarters was converted to a percentage of the calendar year (365 days). These percentages were then applied to the 338-day retail shopping year in order to deduce the number of quarterly average daily shopper visits as shown in Table 4. The numbers in parenthesis after each quarter are the factors of the number of shopper days in that quarter which were divided into that quarter's share of total annual shopper visits.

C.7. Quarterly Average Daily Shopper Distribution

For the purpose of illustrating an average daily shopper visit distribution, a fall day's volume was utilized in order to illustrate the

¹⁰ Monthly Retail Trade Sales and Accounts Receivable U.S. Bureau of the Census, 1973.

maximum potential shopper visit volume. The distribution patterns, shown in Table 4, is drawn largely from industry figures¹¹ and shows the peak volume occurring between the hours of 12 and 2 p.m. with 42 percent of the day's shopper visitation occurring during those hours. Twelve percent of the visitation occurs before noon, 30 percent between 2 and 6 p.m. and 16 percent between 6 and 9 p.m.

¹¹ Pedestrian Planning and Design by Dr. John J. Fruin, 1971.

D. Hotel Occupants

D.1. Average Annual Hotel Occupancy

To determine the range of total annual occupants in a year, the present occupancy rates of Boston's major downtown hotels and the average persons per room at those hotels were compared to other large city hotel situations.¹² The result showed Boston to presently have a relatively high occupancy rate when compared to other large cities. It was felt that this strong market situation would attract new hotel activity in the future causing a decline in future occupancy rates. In order to project possible total annual visitors to an 810 room facility at Park Plaza, the following range was determined from 75 percent annual occupancy with 1.2 persons per room to 85 percent annual occupancy with 1.6 persons per room. The resulting range of average annual total occupants is shown in Table 5 with a low of 266,085 person nights to a high of 402,100 person nights. These occupancy projections assume that the hotel at Park Plaza will be a first-class, full service competitive operation.

D.2. Weekly Versus Weekend Occupancy

Available information on occupancy in Boston's downtown hotels shows that the occupancy level remains constant between the weekend and weekday, regardless of the mix of customer purpose--business vs. pleasure. A newly emerging trend in New England is for full-service hotels offering many amenities to attract a strong weekend occupancy drawn from the local market.¹³ There is reason to believe that in the long run (post Bicentennial) this trend will dominate the Boston hotel industry allowing for a constant occupancy rate for weekends and weekdays.

¹² Harris, Kerr, Forster and Company, The Rouse Company Research Department, A Special Report on Visitor Projections by the Boston Redevelopment Authority, September, 1973.
Economics Research Associates

¹³ The Lodging Industry, Laventhol, Krekstein, Horwath and Horwath, 1974.

Table 5

Hotel Occupants 3M, 4M, 5M, 6M
810 rooms

Average Annual Total Occupants

Low	(75 percent occupancy 1.2 persons per room)	266,085
High	(85 percent occupancy 1.6 persons per room)	402,100

Weekend Versus Weekday Occupancy Levels

Equal For All Anticipated Occupancy Levels

AVERAGE QUARTERLY OCCUPANCY

		<u>Low</u>	<u>High</u>
Winter	11%	29,270	44,230
Spring	20%	53,220	80,420
Summer	33%	87,810	132,690
Fall	36%	95,790	144,760

AVERAGE DAILY OCCUPANCY

		<u>Low</u>	<u>High</u>
Winter	(90 days)	325	491
Spring	(91 days)	585	883
Summer	(92 days)	955	1,440
Fall	(92 days)	1,040	1,573

100% occupancy at two persons per room 1,620

D.3. Average Quarterly Occupancy

The past trends in seasonality of hotel occupancy has been dealt with in detail by a number of groups in anticipating Bicentennial impacts.¹⁴ The greatest quarterly occupancy fluctuations are caused by tourism/pleasure customers while the downtown hotel industry is dominated by business customers and, therefore, quarterly distribution is weighted heavily by business occupancy patterns.¹⁵ The seasonal occupancy variations for business visitors and for pleasure visitors were weighted according to customer mix to determine the seasonality of all occupancy. The resulting quarterly occupancy distribution, as shown in Table 5, is: winter with 11 percent of annual occupancy; spring with 20 percent; summer with 33 percent; and fall with 36 percent of annual occupancy. These percentages were applied to the projected ranges of occupancy levels and persons per room. The resulting range goes from a low of 29,270 occupants in winter to a high of 144,760 occupants in the fall.

D.4. Average Daily Occupancy

The number of days in each quarter was divided into the expected occupancy levels for that quarter in order to arrive at quarterly average daily occupancy levels. The range shown in Table 5 goes from an average daily low in winter of 325 customers to a high in fall of 1,573 customers. At times, however, this planned hotel would enjoy 100 percent occupancy with as many as two persons per room. Thus a peak day is projected at the bottom of Table 5 to depict that situation.

¹⁴ A Special Report on Visitor Projections, Op. Cit.

¹⁵ Ibid.

E. Hotel Employees

E.1. Total Number of Employees

In the four development packages having a hotel as a component (all but 2M), there are two different square footage programs. In order to determine the total number of employees for each of the programs, an 837-square foot of hotel floor area per employee ratio was used.¹⁶ This figure was checked against a sampling of downtown Boston hotels to verify its reliability. Table 1 shows the different employment levels for the two hotel configurations with 740 and 695 employees in each.

E.2. Occupational Characteristics

E.3. Income Characteristics

E.4. Age/Sex Composition

All of the above information is projected on the basis of a 1973 survey of hotel and motel workers in the Boston SMSA.¹⁷ This very comprehensive survey by the Bureau of Labor Statistics compiled data on 4,506 hotel employees of the total 7,007 hotel employees in the Boston area. Industry trends were allowed for in projecting these statistics to 1985. The mode of operation in the hotel industry is not projected to vary significantly in the future. Therefore, present occupational characteristics are held to be valid for Park Plaza's hotels in 1985. Hotel employee characteristics are dominated by the room and food service employees who fall into the "other" occupational category shown in Table 2 with 86 percent. Of the remaining employees, 4 percent are professional and technical workers; 2% managerial; 7 percent clerical; .7 percent sales; and .3% are operatives.

The present income characteristics were drawn from the same survey of hotel workers. The present income levels were projected to reflect the Boston population's growth in income up to 1985.

¹⁶ Idc and Associates, Op. Cit.

¹⁷ "Hotel and Motel Occupational Earnings," U.S. Dept. of Labor, Bureau of Labor Statistics, June, 1973.

The projected greater share of women in hotel management is not expected to significantly alter the sex distribution of all hotel employees as presently surveyed. Therefore, the same sex distribution of male 52 percent, female 48 percent is felt to be valid for the Park Plaza hotel in 1985. The age projections for hotel employees were modified slightly to allow for change in population age trends. As shown in Table 2, 25 percent of the hotel workers will be under 25 years old, 45 percent will be between 25 and 40 years old, and 30 percent will be over 40 years old.



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*cc. J. F. Felt
Marie K...
John W...*

April 28, 1975

Mr. William Bittinger
Boston Redevelopment Authority
One City Hall Square
Boston, MA

Dear Mr. Bittinger:

Following up on our recent meeting, this letter addresses itself to responding to the following questions:

1. The number of workers out of the total residents?
2. The number of service employees?
3. Vacancy rate assumptions?
4. Retail sales per square foot?

Number of workers out of the total residents?

In order to determine the number of workers out of the total resident population of the different Park Plaza configurations, the following methodology was used. The number of workers out of the total population was determined for the three census tracts which conform to Back Bay (Marlborough Street, Massachusetts Avenue, Boylston Street), Prudential Towers, and Beacon Hill (south of Myrtle Street). These tracts house persons with income, age, and housing characteristics close to those projected for Park Plaza residents. In the aggregate, 63 percent of the population in those tracts were working in 1970. The percentages for each tract were very consistent, showing a range of 61 percent at the Prudential Tower tract to 64 percent at the Beacon Hill tract.

The 63 percent figure was then applied to the Park Plaza projected resident population from which a worker per housing unit ratio was derived. This ratio compared closely to the worker per housing unit ratios of the census tracts and served as a way of checking accuracy and applicability. The worker per unit ratio varies according to the number of persons per unit, but the 63 percent of population working is a constant and is the figure to be applied to the total resident population figures for Park Plaza in order to derive the number of workers.



The number of service employees?

The numbers of employees which are given for the retail, office, and hotel operations include the maintenance and security personnel. Employers generally report employee characteristics by using payroll statistics which ordinarily do not exclude any wage earners.

However, the total employment figures given do not accommodate the maintenance and security personnel required for the residential components. Several assumptions must be made before numbers of maintenance and security personnel are assigned to each of the residential schemes. These are:

1. In the cases where a residential tower and retail or office uses share a building, the residences will not share a common entry way with other users but will be separate for security reasons.
2. The security system will utilize technologically, sophisticated equipment including a central security command room to coordinate proprietary equipment.
3. The residences will not have extensive "common areas" which would require housekeeping services.
4. The residence management would maintain only a core of service professionals (plumbers, electricians, carpenters) on a full-time basis.

Based on these assumptions, the following personnel assignments should be made in anticipation of total Park Plaza employment.

	2M 2 Buildings 320 Units	4M, 3M 3 Buildings 995 Units	5M 4 Building 1,085 Units	6M 6 Buildings 1,645 Units
Security ¹	12	15-18	18-24	26-36
Cleaning	10	12	14	16
Maintenance	3	6	8	10
TOTAL	25	33-36	40-46	52-62

¹ The range represented is dependent upon technological equipment and the use of joint entrances between residential towers.

Population Characteristics
Development Alternatives
Park Plaza

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Mr. William Bittinger

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Vacancy rate assumptions?

The employment projections do not take into account building vacancy factors. For the purposes of this planning projection, the 100 percent occupancy situation was presented in order to depict the maximum number of employees and apartment occupants which might be expected within the designated ranges.

If an average annual vacancy situation was to be considered, then a factor of 5 percent annual vacancy should be applied to the gross leasable areas of the office and retail components and to the number of units in the apartment components. The resulting numbers of employees and residents would, however, be an annual average and not representative of the range of possibilities which might go from 0 percent to 20 percent vacancy.

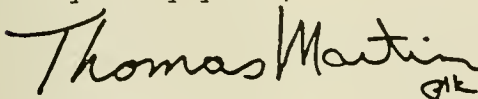
Retail sales per square foot?

ERA feels that the range of retail sales per square foot presented in its report is realistic. The range is notably conservative when compared with some developers' market studies for downtown retail activity.

In the BRA's Financial and Market Feasibility of Design Alternatives (p. 53) for Park Plaza an average retail sales per square foot figure of \$130 was used. The Rouse Company's Market Research Department admits in its Market Analysis of Faneuil Hall Marketplace (p. 1) that a "conservative" figure of \$131 per square foot is possible for their retail space in 1980. Such estimates do fall within the range of possible sales per square foot as presented in ERA's March 21 report.

If you have any further questions regarding these matters, please call either myself or Paul Madden.

Very truly yours,

 Thomas J. Martin
JL

Thomas J. Martin, Vice President
Manager, Boston Office

TJM:plk

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